

EDUCATION

University of California, San Diego

Master of Science, Computer Science

La Jolla, USA

Sep 2023 - Jun 2025 (Expected)

Selected Course: CSE275: Deep Learning for 3D Data

University of Electronic Science and Technology of China

Bachelor of Engineering, Software Engineering

Chengdu, China

Jun 2019 - Jun 2023

GPA: 3.87/4.0 **Average score:** 88.29 **Rank:** 11/113

SKILLS

• **Programming Languages:** Python, C/C++, Javascript(WebGL), Java, MATLAB **Technologies:** PyTorch, TensorFlow, Git, LaTeX, CMake

EXPERIENCE

XiaoHi Studio, Chengdu Qianzai AI & Tech Co., Ltd.

Chengdu, China

Machine Learning Engineer Intern, Supervisor: *Xinzhong Liu*

Feb 2022 - Jun 2022, 40 hours per week

- **Research and development of a model for facial animation driven by singing:** Developed and trained a DNN-based model to generate facial animation synchronized to a singing voice. Features include:
 - Taking both MIDI (Musical Instrumental Digital Interface) and text as comprehensive input.
 - The extended input of MIDI helps the system capture the temporal correspondence between the singing mouth shape and the music. Solved traditional model drawback relating to mismatch between the mouth shape changes and phoneme changes in a time series.
 - It also considers the effects of different singing techniques (such as portamento) and phoneme energy on the mouth shape.
 - *Submitted a patent.*
- **Phoneme-driven Live2D model mouse shape animation generation:** Developed a tool to identify phonemes in the input text and map them to corresponding model mouth shapes. Built upon open-source project Kalidokit.
 - Used B-Spine interpolation to generate continuous animation to simulate natural-looking singing animation.

NUS SoC Summer Workshop: Real-Time Graphics Rendering

Online

Exchange Student, Lecturer: *Low Kok Lim*

May 2021 - Jul 2021, 20 hours per week

- Learned and implemented real-time rendering algorithms in OpenGL, such as GLSL-based Ray Tracing, Shadow Map, Percentage-closer Filtering, Screen-Space Gaussian Blur.
- **Final Project - Surreal Planetary System:** Implemented Whitted-style ray tracing and Phong reflection model. Procedural generation of aurora-like environmental lighting based on Trinoise noise pattern. Won the 3rd prize.

NUS SoC Winter Online Course on AI & ML

Online

Exchange Student, Lecturer: *Terence Sim Mong Cheng*

Jan 2021 - Feb 2021, 9 hours per week

- **Final Project - ML-based Road Sign Recognition System:** Used Scikit-Image to extract hog features and tried SVM, KNN, Random Forrest, GNN algorithms to train classifiers.

SELECTED PROJECTS

- **AyaRay Renderer:** Designed and developed an offline CPU Monte-Carlo path-tracing renderer in modern C++. Included many algorithms in light transportation and appearance modeling, such as Bidirectional Path Tracing and Photon Mapping. Used Bounding Volume Hierarchy (BVH) data structure to accelerate the detection of ray intersections with objects. Won Second Prize in the Chinese National Undergraduate Computer Design Competition.
- **Speech Replay Attack System:** Responsible for processing speech signal MFCC (Mel-frequency cepstral coefficient) extraction. Implemented machine learning algorithms, such as GMM, HMM, SVM, etc., to model speech replay attacks. Trained, tested, and compared different algorithms using ASvspoof2019 dataset.
- **Vehicle Navigation Way-finding System:** Designed a system to read map data in file, calculate navigation path and visualize using MFC. Followed the Object-oriented Programming principle and implemented based on modern C++. Responsible for the path-finding algorithm module. Implemented algorithms include Dijkstra, SPFA, and A-star.
- **Position-based Fluid:** A C and OpenGL implementation of 3D fluid simulation based on Position-based Dynamics. Built constant density constraints based on kernel function in Smoothed Particle Hydrodynamics and solved using Gauss-Seidel iteration. Used background grid to accelerate neighborhood particle search.